Spatial Data Library Documentation

Prepared For

Foothills Model Forest
Hinton, Alberta

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The Forestry Corp.

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Table of Contents

1. Introduction 1

2. General Data Descriptions 2

2.1 Spatial vs Attribute Data 2

2.2 Spatial Data Libraries 2

2.2.1 Provincial Library (provlib) 2

2.2.2 Base Map Library (baselib) 2

2.2.3 Foothills Libraries (fmflib, slaslib) 3

2.2.4 Library Directory Structure 3

2.2.5 Library Installation 4

3. Spatial Library Details 5

3.1 Data Sources 5

3.1.1 Province Level Data (provlib) 5

3.1.2 1:20 Thousand (1:20K) Base Data (baselib) 6

3.1.3 Slope Data (slaslib) 6

3.1.4 Forest Management Data (fmflib) 6

Compartments 6

Forest Inventory 6

Historical Cut Blocks 7

Roads 7

Soils 7

3.2 Datum & Projection 7

3.3 Registration Tics (mastertic coverage) 8

3.4 Library Tile List 8

3.4.1 Provincial Library (provlib) 8

3.4.2 Other Libraries (baselib,fmflib,slaslib) 9

3.5 Library Layer List 10

3.5.1 Provincial Library (provlib) 10

3.5.2 Base Library (baselib) 10

3.5.3 Foothills Library (fmflib) 10

3.5.4 Foothills Library (slaslib) 10

3.6 Relating Spatial & Attribute Data 11

3.6.1 Provincial Library (provlib) 11

3.6.2 Foothills Library (fmflib) 11

4. Library Layer Details 13

4.1 Common Attribute Items 13

4.1.1 Provincial Library 13

4.1.2 Base Library 13

4.2 CCOGIF Coding 14

4.3 Annotation 14

4.4 Layer Descriptions 14

4.4.1 Bridges 15

4.4.2 Compartment Boundries 16

4.4.3 Contour Lines 17

4.4.4 Forest Fires 18

4.4.5 Forest Inventory 19

4.4.6 Geoadministrative Boundaries 22

4.4.7 Historical Cutblocks 26

4.4.8 Lakes 27

4.4.9 Legal Grid 28

4.4.10 Miscellaneous Features 29

4.4.11 Natural Regions 31

4.4.12 Protected Areas 33

4.4.13 Quarter Sections 35

4.4.14 Railways 36

4.4.15 Roads 37

4.4.16 Sections 39

4.4.17 Seismic 40

4.4.18 Slope (detailed) 41

4.4.19 Slope (general) 43

4.4.20 Soils 44

4.4.21 Streams 45

4.4.22 Townships 47

4.4.23 Traplines 48

4.4.24 Utilities 50

4.4.25 UTM 51

4.4.26 Wood Allocation Units 52

5. Other Spatial Data 54

5.1 Miscellaneous Coverages 54

5.1.1 UTM Mapsheets 54

5.1.2 Original Natural Regions 54

5.1.3 Miscellaneous Geoadmin Features 54

5.1.4 Tins 55

5.1.5 Foothills Model Forest Coverages 56

5.1.6 Jasper National Park Coverages 56

5.1.7 Weldwood Coverages 56

6. Other Non-Spatial Data 57

6.1 Feature Code Tables 57

Appendix 1 58

Slope Delineation of the Foothills Forest – Final Report 58

Appendix 2 59

Weldwood FMA Area Soils Coverage Report 59

Appendix 3 60

Weldwood Road Numbering Documentation 60

102-06502/

1. Introduction

Foothills Model Forest (FMF) is in the process of setting up their geographic information systems (GIS) at their new location in the Environmental Training Centre. A large part of this implementaion is the development of spatial and attribute databases to support future GIS applications. In February of 1997, The Forestry Corp. was contracted by (FMF) to assist in the setup of their spatial GIS databases. FMF already had a significant amount of spatial data loaded, from numerous sources, however it was neither well organized, well documented or easily accessible. Therefore, the role of The Forestry Corp. was to organize and document the existing data sets. This report serves as documentation for both the data organization proces and the databases themselves.

2. General Data Descriptions

2.1 Spatial vs Attribute Data

GIS data is grouped into two categories, spatial and attribute. Spatial data represents the physical location of features which are geographically referenced (eg. the location of a road) whereas attribute data describes the feature (eg. the surface type or width of a road). The spatial data is stored within the GIS itself, related attribute data can be stored either within the GIS or in an external database.

For this project, the spatial data is stored within the Arc/Info GIS library structure. There are four separate libraries as discussed below. Attribute data is stored within the Arc/Info database (INFO) but could be moved to an external database in future if desired. As well, additional attribute data could be linked in the future either by loading it into the INFO database or using an Arc/Info supported external database (such as Oracle on Unix or MS Access on Windows).

2.2 Spatial Data Libraries

2.2.1 Provincial Library (provlib)

The provincial library, provlib, contains provincial level data at roughly a 1:1 million scale (1:1M) and has only one tile, the provincial boundary. This library was originally provided by the provincial government but contains updates and enhancements provided by Blue Ridge Lumber (1981) Ltd. through an agreement with FMF.

2.2.2 Base Map Library (baselib)

The Weldwood base library, baselib, contains data relating to base map features at 1:20 thousand scale (1:20K) . The library contains original data purchased from the provincial government, with

minor updates from Weldwood. This library covers an area encompassing Weldwood's FMA plus provincial land which is inside the Foothills Model Forest but outside the FMA.

2.2.3 Foothills Libraries (fmflib, slaslib)

The Foothills library, fmflib, contains data relating to forest management at a scale roughly between 1:15 thousand (1:15K) and 1:40 thousand (1:40K) depending on the specific layer. Data in this library comes from a number of different source as identified in the detailed layer descriptions.

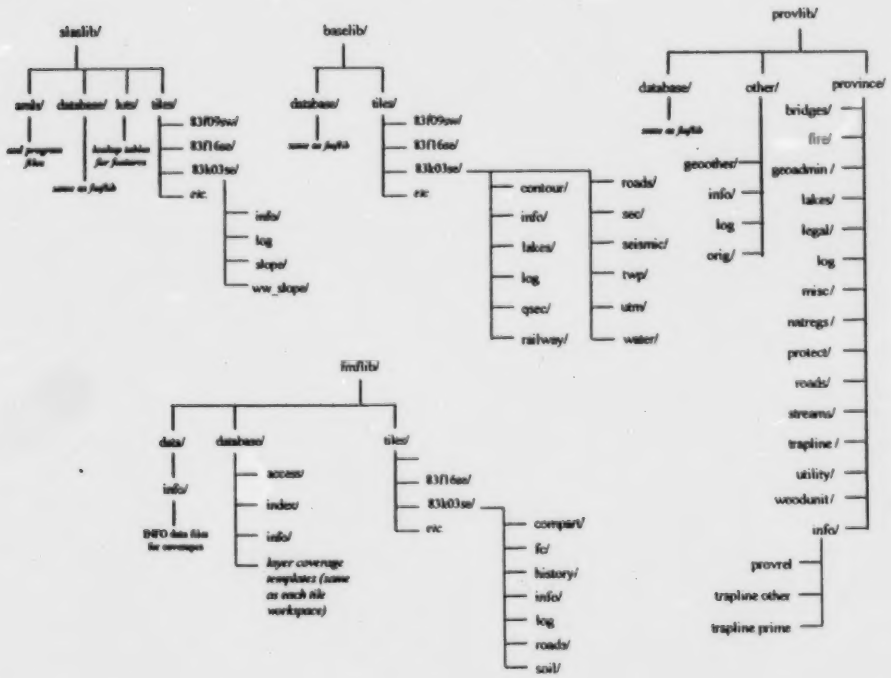
The slope and aspect library, **slaslib,** contains only slope data at this time, aspect can be added as needed. The slope data was created by The Forestry Corp, using provincial DEM data, as part of the Slope Delineation project for FMF.

Spatial extents for both the fmflib and slaslib libraries is roughly the same as the base map library.

A fifth library,**jnplib,** should be added once Jasper National Park's library becomes available.

2.2.4 Library Directory Structure

Following is a diagram of the library directory structure. The location of the top level directory in this structure will depend on where the data is installed on the system.



2.2.5 Library Installation

A number of steps are required to ensure that the libraries are properly accessible on the FMF system. The following items should be checked and/or completed once the data is installed on site at the FMF.

- Ensure that the ownership of all data files on the disks are changed to the appropriate user on the FMF system
- Change the access rights for each library to give the appropriate user administrator access and all other users browse access. In the library directory there is a subdirectory called 'access' which contains the library.access file. Using INFO (without starting Arc) select and edit this file as necessary.
- The library pointers and tile locations are currently setup to use system variables to identify the directory paths. These variables are: BASELIB, FMFLIB, PROVLIB and SLASLIB. If these will continue to be used on the FMF system, the variable values must be set to the appropriate paths for all users. Use the 'setenv' command either in each user's '.cshrc' file or in a common '.cshrc' file (i.e. /etc/skel/.cshrc) to establish these values. For example, the line 'setenv FMFLIB /ff5/fmflib' could be added to each user's file.
- If system variables are not to be used as mentioned above, or when paths are changed to the library locations (e.g. the drive mount points are changed), the library pointer and tile locations must also be changed. The 'libraries' file in the $ARCHOME/tables directory should be changed to reflect the appropriate path to the library 'database' directory (use INFO to edit the file without starting Arc). The 'index.pat' file in the library 'database' directory should also be changed by updating the location field to the appropriate path (use INFO to concatenate the new path and the tile name into the location field, must start Arc first).

3. Spatial Library Details

3.1 Data Sources

3.1.1 Province Level Data (provlib)

Foothills Model Forest aquired the provincial base data from the Alberta Government at a scale of 1:1 million. Since Blue Ridge Lumber (1981) Ltd. had recently completed a clean up and enhancement of the same data, an agreement was made between FMF and Blue Ridge Lumber to have the new data delivered to FMF by The Forestry Corp (who had performed the data editting).

In addition to the provincial base data there were several other spatial data included in what BlueRidge Lumber provided: forest fires, provincial forest regions, forest management units, and natural regions. The forest fire data was originally obtained from Mr. Cordy Tymstra at the Provincial Forest Fire Centre (in Arc/Info format) and includes all Class 'E' fires throughout the entire province from 1958 to 1994. The fire data was originally digitized from 1:250,000 scale paper maps. The forest regions, forest management units wildlife management units and natural regions for the province were received from Ms. Beverly Wilson of the Forest Management Division. Spatial and attribute data relating to provincial animal traplines was received from Ms. Della Clish of the provincial Fish & Wildlife Division.

Data representing bridge locations was obtained by Blue Ridge Lumber from Mr. Alvin Moroz of Alberta Transportation and Utilities (Motor Transport Services). The data was originally obtained from 1:250,000 scale paper maps.

3.1.2 1:20 Thousand (1:20K) Base Data (baselib)

This library contains the government base data at a 1:20 thousand scale. The mapsheets within Weldwood's FMA were purchased originally by the company and were provided to the FMF through their partnership agreement. The remainder of the provincial mapsheets within the model forest area (but outside the FMA) were provided to the FMF by the provincial government, also through the partnership agreement. Weldwood is currently updating their existing base data and a copy should be requested by the FMF once the update is complete. 3.1.3 Slope and Aspect Data (slaslib)

The Alberta Township System (ATS) related layers in this library were created by FMF staff in 1994 in response to a need for polygonized ATS data. This includes separate polygon layers for townships, sections and quarter sections.

3.1.3 Slope Data (slaslib)

This data was provided to the FMF by The Forestry Corp as a deliverable from the slope delineation project (April 1995). See Appendix 1 for a copy of the final project report outlining the data process.

3.1.4 Forest Management Data (fmflib)

Compartments

This library layer includes the operating compartment boundaries for Weldwood and was provided by the company to the FMF. Weldwood is currently reviewing the existing compartment boundaries and changes are expected. Therefore, the FMF should contact Bob Christian at Weldwood regarding changes to this data.

Forest Inventory

In 1993/94 the FMF completed a project which created a forest inventory layer for the entire model forest area. That data included Weldwood's existing digital forest inventory as well as a large number of townships of scanned Phase 3 inventory data purchased by the FMF. The Forestry Corp was contracted to combine all of the data together and perform some quality checks on the data loading (not on the accuracy of the data itself). The deliverable from that contract was a separate Arc/Info coverage for each of Weldwood's five working circle areas plus one for the area outside the FMA (called working circle #6). Those coverages were combined and inserted into the library as part of this current project. It should be noted that there are still a number of gaps in that data set.

Weldwood is currently under going an update of their forest inventory data to the new Alberta Vegetation Inventory (AVI) specifications. A complete digital coverage of that data is expected to be complete in the fall of 1997. The FMF should contact Weldwood staff for a copy of that data once it is available to replace the current Questions regarding this data should be directed to Bob Christian at Weldwood.

Historical Cut Blocks

This data was provided to FMF by Weldwood. Since the dataset is updated each year, the FMF should arrange to get updated data when it is available. Any questions regarding this data should be directed to the GIS staff at Weldwood.

Roads

This data was created by Weldwood through enhancement and update of the original base data. Both existing and proposed roads are included. Contact Bob Christian at Weldwood for additional information. Note that the existing library layer is current to the summer of 1996.

Soils

The soils data was provided to the FMF by Weldwood. It was generated for Weldwood by The Forestry Corp in the fall of 1996. Appendix 2 contains the final report for that data loading project, including a description of the data generated. Note that this data exists within the FMA boundary only.

3.2 Datum & Projection

All of the data in the 1:20K libraries and some of the data in the 1:1M library use the NAD 27 datum parameters and the Clark 1866 spheroid to define the coordinate system. The remainder of the data in the 1:1M library was received in NAD83 however, no conversion back to NAD27 was performed since the maximum difference between the two datums is still less than the stated accuracy of the data itself. The projection of the data in all four libraries is Universal Transverse Mercator (UTM) using zone 11 and metre units. All of the data in the 1:20 thousand libraries was received in the UTM projection initially thus no additional projection was required. However, most of the 1:1M data was received in a Transverse Mercator projection (10TM) and thus had to be projected into UTM. Although the 10TM projection is better for mapping provincial scale data, in order to facilitate easy mapping of data from all libraries together, it was necessary to store them all in the same projection. The projection file used to project from 10TM to UTM was as follows:

```
input
projection transverse
units meters
parameters
0.9992
-115 0 0.0
0 0 0.0
500000.0
0.0
output
projection utm
units meters
zone 11
parameters
end
```

3.3 Registration Tics (mastertic coverage)

A mastertic coverage provides registration points within a map library for digitizing purposes. To ensure that standard tics are available for digizing at virtually any scale (i.e. from FMA level maps down to detailed block plans) a very large number of tics are required. As well, it must be possible to draw only those tics which are relevant at a given scale (i.e. not draw a dense series of tics for a map at 1:150,000).

A mastertic coverage was created by the FMF in 1994 based on the legal grid. Tics were created for all grid intersections and numbered based on an appropriate scale of use. Since tics cannot currently be selected for mapping based on tic id number, a duplicate set of points were also created, with the same id numbers, to be used for mapping purposes (to be mapped as tics). The tic coverages are currently located in the directory **/ff1/foothills/ticstuff**.

Following is a list of the tic/point id numbers and the level they represent:

ID Numbers	Intersections Included	# of tics/points
0 - 50	unused, left for miscellaneous use later	0
51 - 80	corners of UTM mapsheets groups (eg. 83J12)	22
101 - 400	corners of township groups (4 townships/group)	68
401 - 500	corners of all UTM mapsheets (eg. 83J12SE)	70
501 - 1000	corners of all townships	160
1001 - 5000	corners of section groups (4 sections/group)	1585
5001 - 15000	corners of all sections	5078
15001 +	corners of all quarter sections	19912

Since it is now possible in Arc/Info to use points instead of tics for map the need for the mastertic coverage to be loaded into the libraries has been eliminated. Therefore, there is a mastertic coverage but it was not loaded into the spatial libraries as part of this project.

3.4 Library Tile List

3.4.1 Provincial Library (provlib)

This library contains only one tile, 'province', which is the Alberta provincial boundary.

3.4.2 Other Libraries (baselib,fmflib,slaslib)

All three libraries contain the following tiles (80 tiles total):

83c11ne	83f03nw	83f11nw
83c13ne	83f03se	83f11se
83c14ne	83f03sw	83f11sw
83c14nw	83f04ne	83f12ne
83c14se	83f04nw	83f12nw
83c14sw	83f04se	83f12se
83c15ne	83f05ne	83f12sw
83c15nw	83f05nw	83f13ne
83c15se	83f05se	83f13nw
83c15sw	83f05sw	83f13se
83c16nw	83f06ne	83f13sw
83e08ne	83f06nw	83f14ne
83e08se	83f06se	83f14nw
83e09ne	83f06sw	83f14se
83e09nw	83f07ne	83f14sw
83e09se	83f07nw	83f15ne
83e09sw	83f07se	83f15nw
83e16ne	83f07sw	83f15se
83e16se	83f08nw	83f15sw
83e16sw	83f08sw	83f16nw
83f01nw	83f09nw	83f16sw
83f01sw	83f09sw	83k02sw
83f02ne	83f10ne	83k03se
83f02nw	83f10nw	83k03sw
83f02se	83f10se	83k04se
83f02sw	83f10sw	83k04sw
83f03ne	83f11ne	

In addition to the above tiles, the slaslib and fmflib libraries also include the tile 83c08nw, the fmflib and baselib libraries include the tile 83c10nw and the slaslib and baselib libraries include the tile 83e08nw.

3.5 Library Layer List

Following is a list of the layers found within each library. A detailed description of each layer can be found in section 4.

3.5.1 Provincial Library (provlib)

bridges
fire
geoadmin
lakes
legal
misc
natregs
protect
roads
streams
trapline
utility
woodunit

3.5.2 Base Library (baselib)

contour
lakes
qsec
railway
roads
sec
seismic
twp
utm
water

3.5.3 Foothills Library (fmflib)

compart
fc
history
roads
soil

3.5.4 Foothills Library (slaslib)

slope
ww_slope

3.6 Relating Spatial & Attribute Data

Several of the spatial library layers have related attribute information which is not stored in the Arc/Info feature attribute tables but in separate INFO tables. These separate INFO tables must be related to the spatial data in order to make the data usable through Arc/Info. A set of relates have therefore been stored in INFO tables and should be restored as part of the Arc/Info startup procedure (i.e. in the users '.arc' file).

3.6.1 Provincial Library (provlib)

Relates for the provincial library are stored in the provincial library tile directory in an INFO file called 'provrel'. Following is a list of relates contained in that file.

Relate Name:	prime	Table-id:	trapline.prime
		Database:	info
		Item:	trapline
		Column:	trapline
		Type:	ordered
		Access:	ro (read only)
Relate Name:	second	Table-id:	trapline.other
		Database:	info
		Item:	trapline
		Column:	trapline
		Type:	ordered
		Access:	ro (read only)

3.6.2 Foothills Library (fmflib)

Relates for the fmflib library are stored in the data directory in an INFO file called 'fmfrel'. Following is a list of the relates contained in that file.

Relate Name:	fc	Table-id:	fc.dat
		Database:	info
		Item:	standid
		Column:	standid
		Type:	ordered
		Access:	ro (read only)

Relate Name:	history	Table-id:	history.dat
		Database:	info
		Item:	open_no
		Column:	open_no
		Type:	ordered
		Access:	ro (read only)

4. Library Layer Details

4.1 Common Attribute Items

4.1.1 Provincial Library

All arc attibure tables (.AAT info files) for the library layers contain the standard arc/info fields (FNODE#, TNODE#, LPOLY#, RPOLY#, LENGTH, *cover#* and *cover*-ID) plus the following additional attribute fields:

Field Name	Field Type	Field Description
CCOGIF	C (10)	CCOGIF code for feature type
redefined in INFO as		
CCSM	C (2)	Canadian Council of Survey & Mapping class/category
MAJOR	C (5)	primary feature type delineation
MINOR	C (3)	secondary feature type delineation

Since these fields are common to all such layers, they are listed here once rather than repeated in each layer description. The CCOGIF codes are included in this documentation for all applicable layers in the provincial library.

4.1.2 Base Library

All base library layers which came originally from the provincial government data set contain codes similar to those mentioned for provincial data above. They contain the CCSM, MAJOR and MINOR fields plus a field called 'FTYPE' (I4) which is not used for GIS purposes. The four fields together are redefined in INFO with the name 'CLU' (C14). The values for these fields are not included in this documentation but can be found in external files on the GIS (see Section 6).

4.2 CCOGIF Coding

Spatial features and annotation from the provincial government databases include the Canadian Council on Geomatics Interchange Format feature coding standard (CCOGIF). The CCOGIF standard was developed during the 1980's as a vendor independent format for the exchange of digital data. It was developed by a task force which included representatives from federal, provincial and municipal governments along with members from the private sector and Canadian universities. Enhancements to the standard are ongoing through the CCOGIF Technical Committee. CCOGIF is intended to provide a national standard for the exchange of digital topographic data which should minimize the effort required for data exchange.

The CCOGIF codes as included in this document are made up of three parts the CCSM (also called class and category), Major and Minor fields (redefined in the INFO files). These codes can be found on all government provided base data in the provincial level and raw 1:20,000 libraries. Individual CCOGIF code values are included in the detailed layer descriptions.

4.3 Annotation

The1:1M data obtained from Blue Ridge Lumber includes annotation for spatial features. This annotation is separated into subclasses based on the CCOGIF codes. Each .TAT file in the provincial library includes a field called 'TEXT' which contains the actual annotation text and all .TAT files contain the CCOGIF codes.

4.4 Layer Descriptions

This section contains a detailed description of the layers from each of the four spatial libraries. The description indicates which of the libraries the layer belongs. For a list of layers found within each library, please refer to section 3.5 .

Those fields preceeded by an asterisk (*) are key fields and contain a unique value for each individual feature.

4.4.1 Bridges

Layer: bridges

Coverage: bridges

Libraries: provlib

Feature Type: points (bridges.pat)

Data Source: Blue Ridge Lumber (1981) Ltd.

Original Data: Alberta Transportation & Utilities, Motor Transport Services
Mr. Alvin Moroz, Transport Engineering, 403-340-5189
December 1995

Feature Attribute Table Values:

Points:

Field Name	Field Type	Field Width	Description
circle	C	1	Standard log truck limits
square	C	1	Single axel jeep limits
triangle	C	1	tandem jeep / B-train limits

Field Value	Description
B	blue symbol
G	green symbol
R	red symbol
X	black symbol
Y	yellow symbol

Note: these field values apply to all three fields listed above

Related Tables:

none

General Description:

This coverage contains bridge point locations as received digitally from Alberta Transportation. An ASCII file containing a unique ID number and the x/y location for each bridge was generated into a point coverage then linked with the bridge attribute file. There are no CCOGIF codes associated with this data. It should be noted that this data was not created in conjunction with the provincial digital mapping program and thus the bridge locations will not necessarily coincide with the digital hydrology layers (especially the 1:20K library data). Also, the attributes included with the spatial data are symbols descriptions for mapping purposes only and are not true attributes (i.e. they do not describe the bridge characteristics).

The bridges-id field is the key field for this layer although the values themselves have no real meaning.

4.4.2 Compartment Boundries

Layer: compart

Coverage: compart

Libraries: fmflib

Feature Type: polygons (compart.pat)

Data Source: Weldwood of Canada Ltd.

Feature Attribute Table Values:

Polygons:

Field Name	Field Type	Field Width	Description
*wc	I	2	working circle
*compart	I	3	operating compartment number
cname	C	15	full compartment name

*denotes key fields, together they uniquely identify each compartment

Field Name	Field Value	Description
wc	1	Athabasca working circle
	2	Marlboro working circle
	3	Embarras working circle
	4	McLeod working circle
	5	Berland working circle
compart	eg. 10	compartment #10 in that working circle
cname	eg. McLeod 5	operating compartment McLeod 5

Related Tables:

none

General Description:

This coverage contains Weldwood's operating compartment boundaries. Note that these boundaries are currently under review and may change. Contact Bob Christian at Weldwood for a copy of updated boundaries.

4.4.3 Contour Lines

Layer: contour

Coverage: a_ha

Libraries: baselib

Feature Type: arcs (contour.aat)

Data Source: Weldwood of Canada Ltd.

Original Data: Alberta Environmental Protection, Resource Data Division
1:20K Digital Base Map Project

Feature Attribute Table Values:

Related Tables:

none

General Description:

This coverage contains contour lines from the provincial 1:20,000 digital base data. Refer to the code translation tables (see Section 6) for attribute descriptions.

4.4.4 Forest Fires

Layer: fire

Coverage: fire

Libraries: provlib

Feature Type: regions (fire.patclasse)

Data Source: Blue Ridge Lumber (1981) Ltd.

Original Data: Alberta Environmental Protection, Provincial Forest Fire Centre
Mr. Cordy Tymstra, Forest Protection Division, 403-427-6810
Original - December 1995, Updated - January 1996

Feature Attribute Table Values:

Regions:

subclass: classe

Field Name	Field Type	Field Value	Description
*firenumber	C (12)	eg. DL5-35-70	AFS fire number
*burncode	C (1)	B	Burned area
		I	Island unburned
year	I (4)	1958 - 1994	Year of fire

*denotes key fields, together they uniquely identify each fire region

Related Tables:

none

General Description:

This coverage contains polygons for all Class E fires which occurred between 1958 and 1994 (inclusive). There is one region subclass, classe, and each firenumber/burncode combination is a unique region.

4.4.5 Forest Inventory

Layer: fc

Coverage: fc

Libraries: fmflib

Feature Type: polygons (fc.pat)

Data Source: Foothills Model Forest and Weldwood of Canada Ltd.

Feature Attribute Table Values:

Polygons:

Field Name	Field Type	Field Width	Description
wc	I	2	working circle number
compt	I	2	compartment number
*standid	I	10	unique stand number

*denotes key field

Field Name	Field Value	Description
wc	1	Athabasca working circle
	2	Marlboro working circle
	3	Embarras working circle
	4	McLeod working circle
	5	Berland working circle
compt	eg. 10	compartment #10 in that working circle

Related Tables:

Fc.dat

This file contains the attributes for each forest cover polygon.

Field Name	Field Type	Description
wc	B (2)	working circle number
compt	B (2)	operating compartment number
fc-id	B (4)	stand number
ha	N (8)	stand area in hectares
den	C (1)	crown density
htmid	N (7)	stand height mid point
ht	N (7)	stand height
htcl	B (5)	stand height class
sp1	C (5)	species #1 type
sp1pc	B (2)	species #1 percentage
sp2	C (2)	species #2 type

sp2pc	B (2)	species #2 percentage
sp3	C (2)	species #3 type
sp3pc	B (2)	species #3 percentage
sp4	C (2)	species #4 type
sp4pc	B (2)	species #4 percentage
sp_other	C (2)	species #5
orig	B (2)	stand origin
slope	B (2)	percent slope
mreg	C (1)	moisture regime
si	B (2)	site index
uden	C (1)	understorey crown density
uhtmid	N (7)	understorey height mid point
uht	N (7)	understorey height
uhtcl	B (2)	understorey height class
usp1	C (5)	understorey species #1 type
usp1pc	B (2)	understorey species #1 percentage
usp2	C (2)	understorey species #2 type
usp2pc	B (2)	understorey species #2 percentage
usp3	C (2)	understorey species #3 type
usp3pc	B (2)	understorey species #3 percentage
uorig	B (2)	understorey origin
yldcl	B (2)	yield class
invyear	B (2)	year of inventory
invtype	C (3)	type of inventory
hvolha	N (8)	hardwood volume per hectare
svolha	N (8)	softwood volume per hectare
tvolha	N (8)	total volume per hectare
fldchk	B (2)	t/f stand was field checked
rnum	B (4)	?
standid	I (10)	unique stand id number
condec	C (2)	conifer/deciduous breakdown
olabel	C (20)	map overstorey label
workinggroup	C (2)	landbase working group
sp1type	C (1)	species #1 major type (C or D)
sp2type	C (1)	species #2 major type (C or D)
sp3type	C (1)	species #3 major type (C or D)
sp4type	C (1)	species #4 major type (C or D)

General Description:

This data set is a combination of data from both Weldwood and the model forest. Those compartments for which Weldwood already had a digital forest inventory were provided to the FMF, the remainder of the data was generated by the model forest through a contract with Stewart Weir Land Data (1993). That contract involved scanning the existing provincial Phase 3 forest inventory maps and creating clean Arc/Info coverages for each township. Once that contract was completed, the FMF started a contract with The Forestry Corp to combine all of Weldwood's data with the scanned data into one dataset. The output from that contract was 6 coverages, one for each working circle within the FMA plus one for all land outside the FMA. A final report documenting the process used was provided to the FMF by The Forestry Corp.

Weldwood is currently completing an updated digital forest inventory for the entire FMA which is scheduled for completion in the fall of 1997. Once complete that data set should be aquired by the FMF and should replace the one currently in the fmflib library.

4.4.6 Geoadministrative Boundaries

Layer: geoadmin

Coverage: geoadmin

Libraries: provlib

Feature Type: arcs (geoadmin.aat)

regions (geoadmin.patcity, geoadmin.patelect, geoadmin.patforest, geoadmin.patir, geoadmin.patjudicial, geoadmin.patmd, geoadmin.patmilitary, geoadmin.pattown, geoadmin,patvillage)

annotation (geoadmin.tatcity, geoadmin.tatelect, geoadmin.tatforest, geoadmin.tathamlet, geoadmin.tatid, geoadmin.tatir, geoadmin.tatjudicial, geoadmin,tatmd, geoadmin.tatmilitary, geoadmin.tatother, geoadmin.tattown, geoadmin.tatvillage)

Data Source: Blue Ridge Lumber (1981) Ltd.

Original Data: Alberta Environmental Protection, Resource Data Division

1:1M Digital Base Map Project

Feature Attribute Table Values:

Arcs:

geoadmin-id	CCOGIF Code	Scale	Description
51	AR75100000	1M	Boundary town
52	AR78250000	1M	Boundary village
54	AR47350000	1M	Boundary MD
	AR47350300	1M	Boundary MD - heavy
55	AF34850000	1M	Boundary reserve indian
	AF65750000	1M	Boundary settlement metis
56	AR65700000	1M	Settlement
57	AR12850000	1M	City
58	AR31650000	1M	Hamlet
59	BF48950000	1M	Office post
60	AR99999000	1M	Port of entry ???
61	AR21940300	1M	District electoral
62	AJ58050000	1M	Range military
64	AD28600000	1M	Reserve forest
65	AR37000300	1M	Judicial
66	AR55920000	1M	Boundary province
	FA05050000	1M	Bdry internat/prov/state

Regions:

Field Name	Field Type	Field Value	Description

subclass: city			
*cityname	C (30)	n/a	full text of city names eg. Grande Prairie
subclass: elect			
*electname	C (30)	n/a	full text of electoral district name eg. Drayton Valley - Calmar
subclass: forest			
*forest-id	I	n/a	provincial forest boundaries (incomplete)
subclass: ir			
*irname	C (30)	n/a	full text indian reserve/metis colony names eg. Woodland Cree
subclass: judicial			
*judname	C (30)	n/a	full text of judicial district name eg. Drumheller/Hanna
subclass: md			
*mdcode	C (5)	n/a	admin unit type and number eg. MD124
Note: begins with either CN (county), MD (municipal district), ID (improvement district), SA (special area) or CITY.			
mdname	C (30)	n/a	full text of admin unit name eg. Birch Hills
subclass: military			
*milname	C (30)	n/a	full text of military range name eg. Cold Lake Air Weapons Range
subclass: town			
*townname	C (30)	n/a	full text of town name eg. Swan Hills
subclass: village			
*village-id	I	n/a	each village has a unique id number
Note: village subclass includes both villages and hamlets.			
* denote key field(s)			

Annotation:

subclass	CCOGIF Code	Library	Description
city	AR12850000	1M	City name
elect	AR21940002	1M	Electoral District
	AR21940003	1M	Electoral District
	AR21490004	1M	Electoral District
	AR21490005	1M	Electoral District
	AR21490006	1M	Electoral District
	AR21490007	1M	Electoral District
	AR21490008	1M	Electoral District
	AR21490009	1M	Electoral District
	AR21490010	1M	Electoral District
forest	AD28600000	1M	Forest reserve text
hamlet	AR31650000	1M	Loc/hamlet/Post Office/Prt-of-entry
ir	AF34850001	1M	Indian Reserve
	AF34850002	1M	Indian Reserve
	AF34850003	1M	Indian Reserve
	AF65750000	1M	Settlement metis
judicial	AR37000002	1M	Judicial
	AR37000003	1M	Judicial
	AR37000005	1M	Judicial
	AR37000006	1M	Judicial
	AR37000007	1M	Judicial
	AR37000008	1M	Judicial
md	AR47350001	1M	Municipal District (MD)
	AR47350003	1M	Municipal District (MD)
	AR47350004	1M	Municipal District (MD)
	AR47350005	1M	Municipal District (MD)
	AR47350006	1M	Municipal District (MD)
	AR47350007	1M	Municipal District (MD)
	AR47350008	1M	Municipal District (MD)
	AR47350009	1M	Municipal District (MD)
	AR47350010	1M	Municipal District (MD)
military	AJ58050000	1M	Range military
	AJ58050002	1M	Range military
other	AR55350000	1M	Port of entry
	AR65700000	1M	Settlement
	BF48950000	1M	Office post

	FA35150001	1M	Boundary international
	FA35150002	1M	Boundary international
town	AR75100000	1M	Town name
village	AR78250000	1M	Village name

Related Tables:

none

General Description:

This coverage contains area type administrative features from the 1:1,000,000 digital base datasets. The arcs were built into polygons and regions and attribute fields added by Blue Ridge Lumber. Note that some of the arcs in the prov library were not converted to polygons due to the difficult process required and the relative lack of need for the data. These features were placed in the 'geoother' coverage in the provincial library directory.

4.4.7 Historical Cutblocks

Layer: history

Coverage: history

Libraries: fmflib

Feature Type: polygons (history.pat)

Data Source: Weldwood of Canada Ltd.

Feature Attribute Table Values:

Polygons:

Field Name	Field Type	Field Width	Description
blockno	C	8	cutblock number
wc	I	1	working circle number
compt	I	2	operating compartment number
*srmsblk	C	11	redefined field in INFO (other 3 fields)

* denotes key field

Related Tables:

History.dat

This file contains the attributes for each cutblock.

Field Name	Field Type	Description
block	C (8)	cutblock number
wc	I (1)	working circle number
compart	I (2)	operating compartment number
open_no	C (11)	opening number
cutdate	D (8)	date cut?
blkno	C (12)	Weldwood block number
*srmsblk	C (11)	redefined field in INFO (block/wc/compart)

* denotes key field

General Description:

This data set is updated anually by Weldwood for each year's cut history. Therefore, the FMF should requested the updated data from the company on a regular basis.

4.4.8 Lakes

Layer: lakes

Coverage: lakes

Libraries provlib, baselib

Feature Type: arcs (lakes.aat)

annotation (lakes.tatperennial, lakes.tatisland), provlib only

Data Source: provlib – Blue Ridge Lumber (1981) Ltd.

baselib – Weldwood of Canada Ltd.

Original Data: Alberta Environmental Protection, Resource Data Division

1:1M Digital Base Map Project and 1:20K Digital Base Map Project

Feature Attribute Table Values:

Arcs:

lakes-id	CCOGIF Code	Scale	Description
11	GB37950000	1M	Lake perennial

Annotation:

subclass	CCOGIF Code	Scale	Description
perennial	GB37950000	1M	Lake perennial
	GB37950001	1M	Lake perennial
	GB37950002	1M	Lake perennial
	GB37950003	1M	Lake perennial
island	GE36000001	1M	Island
	GE36000002	1M	Island

Related Tables:

none

General Description:

This coverage contains area type water features (stored as lines only) from the provincial 1:20,000 and 1:1,000,000 digital base datasets.

4.4.9 Legal Grid

Layer: legal

Coverage: legal

Libraries: provlib

Feature Type: arcs (legal.aat)

annotation (legal.tattownship)

Data Source: Blue Ridge Lumber (1981) Ltd.

Original Data: Alberta Environmental Protection, Resource Data Division

1:1M Digital Base Map Project

Feature Attribute Table Values:

Arcs :

legal-id	CCOGIF Code	Scale	Description
3	AR65300000	1M	Section surveyed
	AR65300001	1M	Section surveyed across lake
	AR65300002	1M	Section surveyed across river
5	AR75750000	1M	Township/range surveyed
	AR75750001	1M	Twp/range surveyed across lake
	AR75750002	1M	Twp/range surveyed across river
	AR75800000	1M	Township/range unsurveyed
	AR75800001	1M	Twp/range unsurveyed across lake
	AR75800002	1M	Twp/range unsurveyed across river

Annotation:

subclass	CCOGIF Code	Scale	Description
township	AR75700000	1M	Township/range
	AR42800000	1M	Meridian

Related Tables:

none

General Description:

This coverage contains the line type legal grid (Alberta Township System - ATS) features from the 1:1,000,000 digital base data.

4.4.10 Miscellaneous Features

Layer: misc

Coverage: misc

Libraries: provlib

Feature Type: arcs (misc.aat)

annotation (misc.tatigds)

Data Source: Blue Ridge Lumber (1981) Ltd.

Original Data: Alberta Environmental Protection, Resource Data Division

1:1M Digital Base Map Project

Feature Attribute Table Values:

Arcs:

misc-id	CCOGIF Code	Scale	Description
n/a	GP34700000	1M	Icefield
	KA04850000	1M	Border geographic
	KA04950000	1M	Border map
	KA30600000	1M	Grid geographic
	KD32200000	1M	Heading dash line
	KZ01850002	1M	Arrow

Annotation:

subclass	CCOGIF Code	Scale	Description
igds	AR02750000	1M	Base line
	HB17400000	1M	Coulee
	HB47250000	1M	Mountain peak
	HB51850001	1M	Physical feature
	HB51850002	1M	Physical feature
	HB51850003	1M	Physical feature
	KA30600000	1M	Border geographic text
	KD32200001	1M	Heading features
	KD32200002	1M	Heading dig produce note
	KD32200003	1M	Heading produce note
	KD32200004	1M	Heading date
	KD32200005	1M	Heading scale and logo

Related Tables:

none

General Description:

This coverage contains any features from the 1:1,000,000 digital base dataset which were not logically placed in one of the other layers.

4.4.11 Natural Regions

Layer: natregs

Coverage: natregs

Libraries: provlib

Feature Type: regions (natregs.patnatreg, natregs.patsubreg)

Data Source: Alberta Environmental Protection, Forest Management Division
Ms. Beverly Wilson, 403-427-8474

Feature Attribute Table Values:

Regions:

subclass: natreg

Field Name	Field Type	Field Values	Description
*natregcode	I (2)	1	Boreal forest
		2	Rocky Mountains
		3	Foothills
		4	Canadian Shield
		5	Parkland
		6	Grassland
natregname	C (20)	n/a	full text natural region name

subclass: subreg

*subregcode	I (2)	1	Central Mixedwood
		2	Dry Mixedwood
		3	Wetland Mixedwood
		4	Sub-arctic
		5	Peace River Lowlands
		6	Boreal Highlands
		7	Alpine
		8	Sub-alpine
		9	Montane
		10	Upper Foothills
		11	Lower Foothills
		12	Athabasca Plains
		13	Kazan Uplands
		14	Foothills Parkland
		15	Peace River Parkland

		16	Central Parkland
		17	Dry Mixedgrass
		18	Foothills Fescue
		19	Northern Fescue
		20	Mixedgrass
subregname	C (25)	n/a	full text natural subregion name

*denotes key field(s)

Related Tables:

none

General Description:

This coverage contains the natural region and natural subregion polygons for the province of Alberta. The original coverage (natregs_orig) contains many more attributes than the coverage in the library and could be used as a replacement if those attributes are required. This original coverage is in the provincial library 'other' directory.

4.4.12 Protected Areas

Layer: protect

Coverage: protect

Libraries: provlib

Feature Type: arcs (protect.aat)
polygons (protect.pat)
annotation (protect.tatpark)

Data Source: Blue Ridge Lumber (1981) Ltd.

Original Data: Alberta Environmental Protection, Resource Data Division
1:1M Digital Base Map Project

Feature Attribute Table Values:

Polygons:

Field Name	Field Type	Field Value	Description
*parkname	C (40)	n/a	full text park name
parkcode	C (2)	NP	national park
		PP	provincial park
		WA	wilderness area

* denotes key field

Arcs:

protect-id	CCOGIF Code	Scale	Description
75	AL50350000	1M	Boundary park provincial
76	AL50300000	1M	Boundary park national
77	AD80250000	1M	Area wilderness

Annotation:

subclass	CCOGIF Code	Scale	Description
park	AD80250001	1M	Area wilderness
	AD80250002	1M	Area wilderness
	AL50300001	1M	Park national
	AL50300002	1M	Park national
	AL50300003	1M	Park national
	AL50300004	1M	Park national
	AL50350001	1M	Park provincial
	AL50350002	1M	Park provincial

AL50350003	1M	Park provincial
AL50350004	1M	Park provincial

Related Tables:

none

General Description:

This coverage contains line or area type protected area features from the 1:1,000,000 digital base dataset.

4.4.13 Quarter Sections

Layer: qsec

Coverage: qsecpoly

Libraries: baselib

Feature Type: polygons (qsecpoly.pat)

Data Source: Foothills Model Forest

Feature Attribute Table Values:

Polygons:

Field Name	Field Type	Field Width	Description
mer	I	1	meridian number
rge	I	2	range number
twp	I	2	township number
sec	I	2	section number
qsec	C	2	quarter section

Related Tables:

none

General Description:

This data layer was created by the Foothills Model Forest using the base map legal arcs.

4.4.14 Railways

Layer: railway

Coverage: a_de

Libraries: baselib

Feature Type: arcs (railway.aat)

Data Source: Weldwood of Canada Ltd.

Original Data: Alberta Environmental Protection, Resource Data Division
1:20K Digital Base Map Project

Feature Attribute Table Values:

Arcs:

Related Tables:

none

General Description:

This coverage contains railways from 1:20,000 provincial base dataset. Refer to the code translation tables (see Section 6) for attribute descriptions.

4.4.15 Roads

Layer: roads

Coverage: roads (provlib & fmflib), a_da (baselib)

Libraries: provlib, fmflib, baselib

Feature Type: arcs (roads.aat)

Annotation – provlib only (roads.tatprimary, roads.tatsecondary, roads.tatother)

Data Source: Blue Ridge Lumber (1981) Ltd. (provlib)

Weldwood of Canada Ltd. (fmflib & baselib)

Original Data: Alberta Environmental Protection, Resource Data Division

1:1M Digital Base Map Project & 1:20K Base Map Project

Feature Attribute Table Values:

Arcs (provlib only):

roads-id	CCOGIF Code	Scale	Description
30	DA62400500	1M	Road paved primary
	DA62550000	1M	Road primary
31	DA62200600	1M	Road gravel primary
	DA62200601	1M	Road gravel primary heading
32	DA62150600	1M	Road divided primary
	DA62150601	1M	Road divided primary
	DA62150602	1M	Road divided primary
33	DA62400700	1M	Road paved secondary
34	DA62200700	1M	Road gravel secondary
	DA62200701	1M	Road gravel secondary heading

Arcs (fmflib only):

Field Name	Field Type	Field Width	Description
*road_key	I	6	unique ID number within Weldwood's FMA
disp_key	C	9	Alberta legal disposition number
major	B	4	CCSM code
minor	B	4	CCSM code
road_status	I	2	current planning status of road (Weldwood)
ftype	B	4	CCSM code
rd_class	I	2	type of road
source	C	8	?

* denotes key field

Annotation (provlib only):

subclass	CCOGIF Code	Scale	Description
primary	DA62500000	1M	Road primary name
	DA63100000	1M	Road number primary
	DA63100001	1M	Road number primary
secondary	DA62600001	1M	Road - forestry trunk road
	DA62600002	1M	Road - number secondary
other	AQ27700000	1M	Ferry route

Related Tables:

none

General Description:

This coverage contains road and bridge lines from the provincial 1:20,000 and the 1:1,000,000 digital base datasets as well as updates provided by Weldwood. . Refer to the code translation tables (see Section 6) for attribute descriptions for the baselib library. A description of the attribute fields for the fmflib library can be found in Appendix 3. Contact Bob Christian at Weldwood for information regarding Weldwood road updates or attributes.

4.4.16 Sections

Layer: sec

Coverage: secpoly

Libraries: baselib

Feature Type: polygons (secpoly.pat)

Data Source: Foothills Model Forest, Weldwood of Canada Ltd.

Original Data: Alberta Environmental Protection, Resource Data Division
1:20K Base Map Project

Feature Attribute Table Values:

Polygons:

Field Name	Field Type	Field Width	Description
mer	I	1	meridian number
rge	I	2	range number
twp	I	2	township number
sec	I	2	section number
qsec	I	2	quarter section
twppoly	I	5	redefined field in INFO (mer/rge/twp)

Related Tables:

None

General Description:

This data set was created by the Foothills Model Forest using the provincial 1:20K base map arcs provided by Weldwood.

4.4.17 Seismic

Layer: seismic

Coverage: a_dc

Libraries: baselib

Feature Type: arcs (seismic.aat)

Data Source: Weldwood of Canada Ltd.

Original Data: Alberta Environmental Protection, Resource Data Division
1:20K Digital Base Map Project

Feature Attribute Table Values:

Arcs:

Related Tables:

none

General Description:

This layer contains seisimc lines and trails from the provincial 1:20K digital base with the standard CCSM code fields. Refer to the code translation tables (see Section 6) for attribute descriptions.

4.4.18 Slope (detailed)

Layer: slope

Coverage: slope

Libraries: slaslib

Feature Type: polygons (slope.pat)

Data Source: Foothills Model Forest

Original Data: Alberta Environmental Protection, Resource Data Division
Provincial DEM dataset

Feature Attribute Table Values:

Polygons:

Field Name	Field Type	Field Width	Description
ff_slope	B	4	slope category

Field Name	Field Value	Description
ff_slope	2	slope <= 2
	5	slope > 2 and <= 5
	9	slope > 5 and <= 9
	15	slope > 9 and <= 15
	30	slope > 15 and <= 30
	45	slope > 30 and <= 45
	60	slope > 45 and <= 60
	999	slope > 60

Related Tables:

Slope1.lut, slope2.lut and slope_w1.lut:

Field Name	Field Type	Field Width	Description
ff_slope	I	3	slope category value
symbol	I	3	map symbol number
desc	C	25	slope category description

Note: desc field in slope_w1.lut file only

Slope1.key, Slope2.key and slope3.key:

Field Name	Field Type	Field Width	Description
symbol	I	3	map symbol number
desc	C	36	legend text

General Description:

This data set was created by The Forestry Corp from the provincial DEM data through the Slope Delineation project for the Foothills Model Forest (April 1995, see Appendix 1).

4.4.19 Slope (general)

Layer: ww_slope

Coverage: ww_slope

Libraries: slaslib

Feature Type: polygons (slope.pat)

Data Source: Weldwood of Canada Ltd.

Original Data: Alberta Environmental Protection, Resource Data Division
Provincial DEM dataset

Feature Attribute Table Values:

Polygons:

Field Name	Field Type	Field Width	Description
diss_val	I	3	slope category

Field Name	Field Value	Description
diss_val	1	slope <= 30
	2	slope > 30 and <= 45
	3	slope > 45

Related Tables:

none

General Description:

This data set was created by The Forestry Corp for Weldwood in June 1997. It is basically just a generalization of the detailed slope layer.

4.4.20 Soils

Layer: soil

Coverage: soil

Libraries: fmflib

Feature Type: Polygons (soil.pat)

Data Source: Weldwood of Canada Ltd.

Feature Attribute Table Values:

Polygons:

Field Name	Field Type	Field Width	Description
survey	C	4	survey survey or IRI identifier
ecodistrict	C	4	ecological district
assoc1	C	5	soil association or ecosection #1
variant1	I	3	soil variant #1
modifier1	C	3	map unit modifier #1
assoc2	C	5	soil association or ecosection #2
variant2	I	3	soil variant #2
modifier2	C	3	map unit modifier #2
assoc3	C	5	soil association or ecosection #3
variant3	I	3	soil variant #3
modifier3	C	3	map unit modifier #3
minsppc	I	3	minimum slope percent
maxsppc	I	3	maximum slope percent
capgrp	C	4	soil association capability group
expai	I	3	expected PAI (cu/ha/yr)
lmf1	C	2	land management factor #1
lmf2	C	1	land management factor #2
lmf3	C	1	land management factor #3
perfgrp	I	1	soil series performance group

Related Tables:

none

General Description:

This data was loaded for Weldwood by The Forestry Corp in the fall of 1996. It was digitized from a number of different soil maps/inventories. Appendix 2 contains the final report for the soils loading project.

4.4.21 Streams

Layer: streams (provlib), water (baselib)

Coverage: streams (provlib), a_ga (baselib)

Libraries: provlib, baselib

Feature Type: arcs (streams.aat), arcs (water.aat)

Annotation – provlib only (streams.tatriver, streams.tatperennial, streams.tatother)

Data Source: Blue Ridge Lumber (1981) Ltd. and Weldwood of Canada Ltd.

Original Data: Alberta Environmental Protection, Resource Data Division

1:1M Digital Base Map Project and 1:20K Digital Base Map Project

Feature Attribute Table Values:

Arcs (provlib only):

streams-id	CCOGIF Code	Scale	Description
14	GA61850000	1M	River/stream major
16	GA61900100	1M	River/stream perennial bold
	GA61900300	1M	River/stream perennial heavy
	GA61900400	1M	River/stream perennial light
	GA61900600	1M	River/stream perennial moderate
20	GA08800000	1M	Canal irrigation
	GA19650000	1M	Dam
	GA26450000	1M	Fall
	GA58250000	1M	Rapid

Annotation:

subclass	CCOGIF Code	Scale	Description
river	GA61850001	1M	River/stream major
	GA61850002	1M	River/stream major
	GA61850003	1M	River/stream major
	GA61850004	1M	River/stream major
perennial	GA61900300	1M	Riv/strm perennial heavy
	GA61900301	1M	Riv/strm perennial heavy
	GA61900400	1M	Riv/strm perennial light
	GA61900600	1M	Riv/strm perennial mod.
	GA61900601	1M	Riv/strm perennial mod.
other	GA26450000	1M	Fall
	GA58250000	1M	Rapid

Related Tables:

none

General Description:

This coverage contains lineal water features from the provincial 1:20,000 and 1:1,000,000 digital base datasets. Refer to the code translation tables (see Section 6) for attribute descriptions for the baselib library.

4.4.22 Townships

Layer: twp

Coverage: twppoly

Libraries: baselib

Feature Type: polygons (twppoly.pat)

Data Source: Foothills Model Forest, Weldwood of Canada Ltd.

Original Data: Alberta Environmental Protection, Resource Data Divisin
1:20K Digital Base Map Project

Feature Attribute Table Values:

Polygons:

Field Name	Field Type	Field Width	Description
mer	I	1	meridian
rge	I	2	range
twp	I	2	township
twppoly	I	5	redefined field in INFO (mer/rge/twp)

Related Tables:

none

General Description:

This data layer was created by the FMF using the Alberta Township System (ATS) data from the 1:20K base map.

4.4.23 Traplines

Layer: trapline

Coverage: trapline

Libraries: provlib

Feature Type: polygons (trapline.pat)

annotation (trapline.tatlinenum) in prov library only

Data Source: Blue Ridge Lumber (1981) Ltd.

Original Data: Alberta Environmental Protection, Fish & Wildlife Division

Ms. Della Clish (1:1M scale data)

November 1995

Feature Attribute Table Values:

Polygons:

Field Name	Field Type	Field Value	Description
*trapline	I (4)	eg. 1228	Registered trapline number

*denotes key field

Annotation:

subclass	CCOGIF Code	Scale	Description
linenum	n/a	1M	Registered trapline number

Related Tables:

trapline.prime:

This file contains the attributes of the primary trapper of the trapline (1:1 relationship).

Field Name	Field Type	Description
*trapline	I (4)	Registered trapline number
license	C (6)	Trapper license number
lastname	C (25)	Last name of trapper
firstname	C (25)	First name & initial of trapper
address	C (25)	Mailing address of trapper
city	C (25)	Mailing city of trapper
postalcode	C (6)	Mailing postal code of trapper
district	C (3)	*unknown*
birthdate	I (6)	Birth date of trapper (YYMMDD)
issuedate	I (6)	Issue date of license (YYMMDD)
principal	C (1)	Flag for principal trapper of line (Y/N)

*denotes key field

trapline.other:

This file contains the attributes of all secondary trappers of each trapline (possible 1:many relationship).

Field Name	Field Type	Description
**same as trapline.prime file (see above)		

General Description:

This coverage contains the registered trapline areas within the province of Alberta.

4.4.24 Utilities

Layer: utility

Coverage: utility

Libraries: provlib

Feature Type: arcs (utility.aat)

annotation (utility.tatrailway)

Data Source: Blue Ridge Lumber (1981) Ltd.

Original Data: Alberta Environmental Protection, Resource Data Division

1:1M Digital Base Map Project

Feature Attribute Table Values:

Arcs:

utility-id	CCOGIF Code	Scale	Description
219	DE56900000	1M	Rail line
224	BQ70680000	1M	Station rail line

Annotation:

subclass	CCOGIF Code	Scale	Description
railway	BQ70680000	1M	Station railline
	DE56900000	1M	Rail line

Related Tables:

none

General Description:

This coverage contains railways from the provincial 1:1,000,000 digital base dataset.

4.4.25 UTM

Layer: utm

Coverage: a_ka

Libraries: baselib

Feature Type: arcs (utm.aat)

Data Source: Weldwood of Canada Ltd.

Original Data: Alberta Environmental Protection, Resource Data Division
1:20K Digital Base Map Project

Feature Attribute Table Values:

Arcs:

Related Tables:

none

General Description:

This coverage contains Universal Transverse Mercator lines, from the provincial 1:20K digital base dataset, with the standard CCSM codes. Refer to the code translation tables (see Section 6) for attribute descriptions.

4.4.26 Wood Allocation Units

Layer: woodunit

Coverage: woodunit

Libraries: provlib

Feature Type: regions (woodunit.patfma, woodunit.patfmu, woodunit.patforest,)

Data Sources: Blue Ridge Lumber (1981) Ltd.

Original Data: Alberta Environmental Protection, Forest Management Division
Ms. Beverly Wilson, 403-427-8474
December 1995

Feature Attribute Table Values:

Regions:

subclass: fma

Field Name	Field Type	Field Value	Description
*fma	C (3)	A	Alberta Newsprint Company
		C	Canadian Forest Products Ltd.
		D	Daishowa-Marubeni International
		E	Blue Ridge Lumber (1981) Ltd.
		FM	Fort MacMurray
		IR	Indian Reserves
		J	Alberta Pacific Forest Industries
		N	Weldwood of Canada Ltd. (Hinton Division)
		P	Weyerhaeuser Canada Ltd. (Grande Prairie Operations)
		PP	Provincial parks
		PR	DMI Reserve Area
		S	Slave Lake Pulp Corporation
		SMN	Fort McKay settlement
		SR	Slave Lake Pulp Corp. Reserve Area
		U	Sunpine Forest Products Ltd.
		W	Weyerhaeuser Canada Ltd. (Slave Lake Operations)
		Y	Weyerhaeuser Canada Ltd. (Drayton Valley Operations)
fmaname	C (50)	n/a	full text of FMA name

*denotes key field

subclass: fmu			
*fmu	C (5)	eg. A13	Forest Management Unit number

subclass: forest			
*forest	C (4)	BNP	Banff National Park
		EINP	Elk Island National Park
		JNP	Jasper National Park
		NEB	Northeast Boreal
		NES	Northern East Slopes
		NWB	Northwest Boreal
		PKLD	Parkland
		PRAI	Prairie
		SES	Southern East Slopes
		WBNP	Wood Buffalo National Park
		WGNP	Waterton-Glacier National Park
forestname	C (40)	n/a	full text of forest region name

*denotes key field(s)

Related Tables:

none

General Description:

This coverage contains boundaries related to wood allocation including Forest Management Agreements, Forest Management Units and Forest Regions. The was originally received from the provincial forest service at a 1:1M scale.

5. Other Spatial Data

5.1 Miscellaneous Coverages

5.1.1 UTM Mapsheets

Most of the non-provincial data described in this document was originally aquired by UTM mapsheet (1:20 thousand, eg. 83C10NE). As well, output maps are often required based on these same mapsheet boundaries. Although there is no library layer containing the UTM mapsheet boundaries there is a coverage which can be used for mapping or analysis purposes since the library tiles for the baselib, fmflib and slaslib libraries are UTM mapsheets. The coverage is called 'index' and can be found in each library *database* directory (e.g. fmflib/database/index). The polygon attribute table (.PAT) file for this coverage includes a field called 'TILE-NAME' which contains the mapsheet number for each polygon (eg. 83C10NE, all capital letters).

5.1.2 Original Natural Regions

The original natural regions coverage received from the provincial government included a large number of polygon attributes. All of these attributes were deleted from the library natural regions layer except for the natural region and subregion values. However, a copy of the original coverage, including all attributes on the .PAT file was kept in case other attributes were of interest in the future. That coverage is called 'natregs_orig' and can be found in the provincial library *other* directory. A detailed description of the attributes was not available at this writing but should be available from the provincial forest service if needed.

5.1.3 Miscellaneous Geoadmin Features

During loading of the geoadministrative features into the provincial library, there were a number of features which were not required at that time and which were not easily incorporated with the data structure. These features were removed from the coverages to be loaded and placed in a

separate coverage called 'geoother' to be found in the provincial library *other* directory. This coverage may be required to restore additional features in the future. An example of the types of features included in this coverage is post office locations whose drawing symbol (consecutive stars with a cross hair in the middle) exists as a number of separate arcs.

5.1.4 Tins

A number of Arc/Info tins were generated by The Forestry Corp as part of the Slope Delineation project for the FMF (see Appendix 1). The raw DEM data used to generated the tins is not online but should exist on backup 8mm tapes. The tins are currently on the FMF disk drive under the directory name /ff2/tins. Included are tins for the following mapsheets:

83c10nw	83f03nw	83f11sw
83c11ne	83f03se	83f12ne
83c13ne	83f03sw	83f12nw
83c14ne	83f04ne	83f12se
83c14nw	83f04nw	83f12sw
83c14se	83f04se	83f13ne
83c14sw	83f05ne	83f13nw
83c15ne	83f05nw	83f13se
83c15nw	83f05se	83f13sw
83e08ne	83f05sw	83f14ne
83e08nw	83f06ne	83f14nw
83e08se	83f06nw	83f14se
83e09ne	83f06se	83f14sw
83e09nw	83f06sw	83f15ne
83e09se	83f07ne	83f15nw
83e09sw	83f07nw	83f15se
83e16ne	83f07se	83f15sw
83e16se	83f07sw	83f16nw
83e16sw	83f08nw	83f16sw
83f01nw	83f08sw	83k02sw
83f01sw	83f10ne	83k03se
83f02ne	83f10nw	83k03sw
83f02nw	83f10sw	83k04se
83f02se	83f11ne	
83f02sw	83f11nw	
83f03ne	83f11se	

5.1.5 Foothills Model Forest Coverages

A number of miscellaneous coverages created by/for the FMF from 1993 to 1996 are currently stored on the disk drive under the directory /ff1/foothills/coverages. Some of these coverages have been included in the spatial libraries, some have not. See the README file in that directory for a brief description of each coverage.

5.1.6 Jasper National Park Coverages

The disk drive currently contains a number of miscellaneous coverages obtained from the park in 1995 and 1996. These coverages can be found in the /ff1/jasper/coverages directory and a README file one level higher has a brief description of each one. These coverages were converted from the park's Spans GIS and are relatively out dated. Once a new spatial library is available from Jasper National Park it should be copied to the model forest GIS. Contact Helen Purves at the park for additional information.

5.1.7 Weldwood Coverages

There are a number of coverages provided by Weldwood in the directory /ff1/weldwood/coverages. A README file in that directory contains a brief description of each coverage. Any questions regarding the content or status of these coverages should be directed to the Weldwood GIS staff.

6. Other Non-Spatial Data

6.1 Feature Code Tables

Many of the data layers in these libraries contain feature codes from provincial and federal standards committees. These codes are described in two ascii files, currently on the FMF disks. The files are in the directory /ff1 and are called 'Feature.Codes' and 'Translate.Table'. These files describe the CCOGIF and CCSM codes used within the FMF spatial libraries (see Section 4.2).

Appendix 1

Slope Delineation of the Foothills Forest – Final Report

The Forestry Corp.

Slope Delineation of the Foothills Forest

Final Report

April 12, 1995

1. Introduction

The Foothills Forest completed a preliminary inventory of environmentally significant areas within its 1.2 million hectare landbase in 1994. In order to refine this classification, additional detail regarding slope classes is desired. Our original proposal outlined a methodology for creating this coverage, including several options for dealing with lake boundaries.

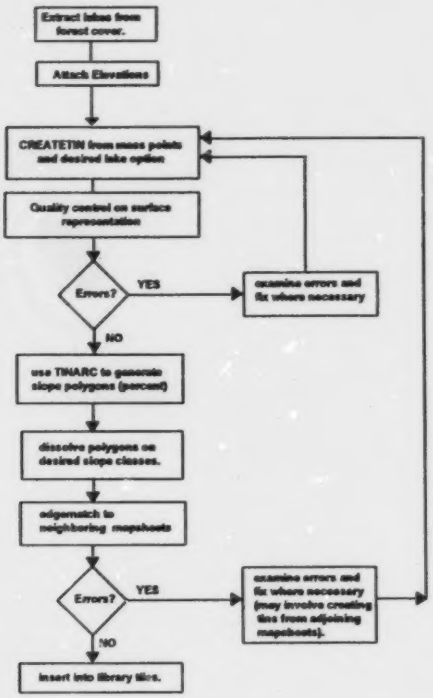
Subsequently The Forestry Corp. was awarded the contract to create a digital coverage in Arc/Info format of the slope values over the entire Foothills Forest. Two contracts were put into force. One from the Foothills Forest to create a slope coverage using specified slope classes built from the provincial DEM base data. The second contract was from Weldwood of Canada to enhance the slope product to include lakes as true boundaries (i.e.: the actual lake boundary forms part of the slope coverage).

This report contains an overview of the methodology used (including minor deviations from the original proposal), some comments regarding the use of the data and a list of the deliverables as agreed upon.

2. Methodology

2.1 Overview

Generally, the slope coverage was created by following the process detailed in the schematic below. Details regarding these steps are contained in this section. Where the process deviated from the original methodology or where specific products have not been delivered, the symbol ⛔ is displayed.


Extract lakes from forest cover.
Attach Elevations
CREATETIN from mass points and desired lake option
Quality control on surface representation
Errors?
YES
examine errors and fix where necessary
NO
use TINARC to generate slope polygons (percent)
dissolve polygons on desired slope classes.
edgematch to neighboring mapsheets
Errors?
YES
examine errors and fix where necessary (may involve creating ties from adjoining mapsheets).
NO
insert into library tiles.

2.2 Lakes Data

Lakes were extracted from the Phase 3 and AVI forest cover data bases for areas within the Foothills Forest where digital forest cover exists. For areas where there was no digital forest cover, lakes were taken from the digital base data.

Elevations were assigned to each lake by looking up the elevation via the planimetric base data, or by interpreting the approximate elevation from the 10 meter contour intervals. The lakes coverage was then clipped by the UTM mapsheet boundaries to correspond with the geographic extent of the mass DEM points.

2.3 Creating the TIN

A tin was created for each 1:20,000 UTM mapsheet using:

- the DEM mass points on a 50 meter grid (a 100 meter grid was used for several mapsheets as this was the DEM data donated to the Foothills Forest by Resource Information Division), and
- the appropriate lakes coverage used as a 'hard replace' (this ensures that the points inside the lake are all set at the lake elevation, ensuring that lakes appear flat in the resulting slope coverage).

Irregularities were noted in creating some TINs:

- for some mapsheets, there was considerable overlap of DEM points with neighboring mapsheets. This was not a problem, as the overlap would be clipped off when inserted in the library.
- for some mapsheets, the first occurrence of DEM points was 50 meters inside the mapsheet boundary. This meant that the slope coverage would not extend to the mapsheet boundary, leaving a gap. In these cases, the neighboring mapsheet always contained the points necessary to fill the gap. Therefore, the two mapsheets were processed together to build a tin and slope coverage before insertion into the library.
- for portions of two mapsheets outside the study area, several lakes were found to have slope facets spanning entire lake as their boundaries were not 'hard replaced' during the creation of the TIN. Because these lakes fell outside the Foothills Forest boundary, they were not included in the lakes coverage. However, this is mentioned here because the full mapsheet of slopes is included in the librarian layer even though the land is outside the Foothills Forest boundary. One exception to this is Brule Lake ,in mapsheet 83f05sw, which was likely interpreted as part of the Athabasca River enabling it to have changing elevation values as one travels up or down stream.

2.4 Creating the Slope Polygons

Slope polygons were created from the TINs for each mapsheet. Each polygon is essentially a triangle formed from the 50 meter grid of DEM points. At this time, slope percent, aspect, and surface area are calculated for each polygon. These slope coverages were to be delivered to Weldwood of Canada. The coverges are very large (approximately 190,000 polygons per full UTM mapsheet), taking up approximately 60 MB of disk storage. For all 76 mapsheets, this would require approximately 4.6 GB of disk storage. Queries or any other spatial analysis using coverages this size would take extraordinary amounts of time, temporary swap space, and system memory.

- It is our recommendation that Weldwood adopt a slope classification to reduce the amount of data stored in these slope coverages. The classification can be in equal percent intervals (say 3 percent classes), or can be at important slope breaks (such as defined by the Foothills Forest). An alternative to this is to GRID the slope coverage. This would provide a good mapping representation of the slope data, significantly reduce the size of the data set yet retain much of the slope resolution. The disadvantage of GRIDs is that they cannot be used in topological overlays, but this must be weighed with the advantages of file size, display speed, query speed and the level of resolution necessary for any decision making based on this data.

  Due to the sheer size of the data set, these slope coverages will be delivered by April 30 after consultation with Weldwood of Canada.

2.5 Dissolving the Slope Polygons into Classes

Raw slope polygons were dissolved into the classes desired by the Foothills Forest:

FF_SLOPE	Percent Slope
2	slope <= 2%
5	2 < slope <= 5%
9	5 < slope <= 9%
15	9 < slope <= 15%
30	15 < slope <= 30%
45	30 < slope <= 45%
60	45 < slope <= 60%
999	slope > 60%

The original proposal intended to provide the following detail attached to each dissolved slope polygon:

Field Name	Input Width	Output Width	Type	No. Decimals	Units
AREA (2-dimensional)	4	12	F	3	sq. m.
PERIMETER	4	12	F	3	m
SLOPE#	4	5	B		-
SLOPE-ID	4	5	B		-
PERCENT_SLOPE	4	12	F	3	percent
ASPECT	4	12	F	3	azimuth degrees
SURFACE_AREA (3-D)	4	12	F	3	sq. m.
FF_SLOPE	4	5	B		max. percent

- However, because the slope polygons are dissolved on slope percent, there will not be a valid percent_slope, aspect or surface_area. The only attribute of the dissolved slope coverage is the FF_SLOPE.

Aspect and surface area were not required deliverables, they were merely attached to the raw slope coverage generated by the TINARC command.

An aspect coverage can be derived from the raw slope polygons, again dissolved on some reasonable classification of the azimuth into aspect classes.

2.6 Insertion into the Library

The dissolved slope coverage was inserted into the Weldwood library structure. After insertion, visual comparisons were made to ensure the slopes covered the extent of the mapsheet and that no irregularly placed DEM points created abnormal slope polygons. If such problems were found, the proper remedy was implemented:

1. where the slope coverage did not extend to the mapsheet boundary, the problem mapsheet and the neighboring mapsheet containing the necessary points were processed together as described in section 2.2.
2. where points fell outside the square grid structure, creating abnormal slope polygons, the mapsheet was either overwritten by the overlapping portion of the adjoining mapsheet during the insert process or was clipped at the boundary and manually copied to the library. Visual checks were again performed along the seam joining the mapsheets to ensure data consistency. In the case of the incorrect polygons being overwritten, the bounding arc from the overlapping slope coverage remains in the updated tile.

2.7 Slope Maps

Maps at 1:50,000 were produced in color, ready for plotting on the Foothills Forest electrostatic plotter. Each map covers approximately 9 UTM mapsheets and shows slope polygons shaded by the Foothills Forest slope class.

3. Deliverables

The following products, form the deliverables for this project:

Partner	Description	Date of Delivery
Foothills Forest	1. slope class coverages, edge matched by UTM tile, provided for each tile in the Foothills Forest library.	April 13, 1995
	2. colour maps at 1:50,000 as described in section 2.6	April 13, 1995
Weldwood of Canada	1. TINs for each UTM mapsheet	April 13, 1995
	2. Slope polygon coverages	April 30, 1995

Appendix 2

Weldwood FMA Area Soils Coverage Report

The Forestry Corp.

Weldwood FMA Area Soils Coverage

Prepared for Weldwood of Canada, Hinton Division

November 1996

Background

A digital layer of soils information for Weldwood of Canada, Hinton Division, was created for their FMA Area . Data for the FMA existed in several forms:

- The Soil Survey and Land Evaluation of the Hinton-Edson Area. Alberta Soil Survey. Report N. 31, 1972.
- Coal Branch Integrated Resource Inventory. Resource Evaluation and Planning Branch. Alberta Energy and Natural Resources. 1983.
- Berland Integrated Resource Inventory. Resource Evaluation and Planning Branch. Alberta Energy and Natural Resources. 1987.
- Yellowhead North Integrated Resource Inventory. Land Information Branch. Alberta Energy and Natural Resources. 1988.

For this project, data was not 'reconciled' between the various surveys. The coverages were simply joined along the boundaries. This means soils polygons on the edge of a coverage are discontinuous with adjacent polygons from another coverage. Where there was continuity among the surveys (e.g., between two IRI surveys), the polygon boundaries were edgematched. Joins between coverages were made along township boundaries.

1.1 The Hinton-Edson Soil Survey

This data was mapped at a scale of 1:126,720. The polygons are referred to as mapping units. These are breakdowns of the soil association. For example, the Tri Creek Association has 3 mapping units called TRC1, TRC2 and TRC3. Each polygon contains a number of mapping units. They are ranked in order of importance for each polygon, but the relative importance is not noted. Each polygon has a set of attributes listing the association, mapping units present, slope and land management factors. A soil phase (e.g., shallow phase, stony phase, etc.), where appropriate, is also attached to each polygon. Each mapping unit carries attributes related to dominant, significant and incidental soil types as well as hazard ratings for erosion, windthrow and tree mortality. In the soils data base, the mapping unit information has been attached to each polygon. Each polygon can, therefor, has one or more records (i.e., one per map unit).

The Hinton-Edson soil survey was the preferred data source. Where the Hinton-Edson survey overlapped other surveys, the Hinton-Edson survey data was selected.

1.2 Coal Branch IRI

This data was mapped at 1:100,000. The polygons are mostly based on changes in vegetation, but each polygon has soils related information. As many as four or five soils are associated with each polygon. The relative dominance of these soils is not necessarily reflected in the order in which the soils are listed (although there may be a correlation). Descriptive information regarding the soil subgroups and textures is provided. Slope information is presented as a range (e.g., 0 - 10%).

The Coal Branch IRI provided coverage for the southern portion of the FMA, south of the Hinton-Edson soil survey.

1.3 Berland IRI

The Berland data was mapped at 1:100,000. Like the Coal Branch ELC, the polygons are based on changes in vegetation and terrain and have related soils information. Up to four soil subgroups are associated with each polygon. The relative dominance of the soil types is not necessarily reflected in the order in which the soils are listed (although there may be a correlation). Slope information is presented as a range (e.g., 0 - 10 %).

The Berland IRI provided coverage for a small section along the northern and northwestern boundary of the FMA.

1.4 Yellowhead North IRI

The Yellowhead data was mapped at 1:100,000. Like the Coal Branch IRI, the polygons are based on changes in vegetation and terrain and have related soils information. Up to five soil types are associated with a single polygon. The relative dominance of the soil types is not necessarily reflected in the order in which the soils are listed (although occasionally there is a correlation). Slope information is presented as a range (e.g., 0 - 10 %).

The Yellowhead North IRI provided coverage for the western portion of the FMA, west of the Hinton-Edson soil survey.

Description of Digital Loading

Digitizing was done directly from the soil survey or IRI maps. The latitude and longitude of the map corners or township corners were used for registration.

To help ensure consistency between the soils theme and other spatial data sets, the soils data was digitized into a coverage which already contained features to which the soils layer must match. These included lakes and major rivers and streams.

In the Hinton-Edson soil survey, the land adjacent to many of the rivers and streams was classified as a combination of 'Alluvium Complex' (AV) and 'River Bank' (RB). Alluvium Complex refers to a heterogeneous collection of soils developed on recent and sub-recent alluvial deposits along drainage channels. River Bank refers to strongly eroded, continuous landforms formed by recent or historical river erosion. Because of the subtle differences between the rivers in Weldwood's digital coverage and that in the Hinton-Edson soil survey and the narrowness of the AV and RB types along the rivers, the two types were not differentiated. That is, the AV and RB map units identified in the Hinton-Edson soil survey were combined into a single unit.

Lakes from Weldwood's digital coverage were retained where possible. A number of partially completed 'lake' polygons were deleted from the coverage because they were not closed polygons (i.e., these appeared as though they might be lakes but were represented by an arc, not a closed polygon). This means that some lakes may not appear in the soils coverage.

Description of Data Fields

The following is a brief description of each of the data fields. The appendix lists the valid codes for each field.

Two symbols have been incorporated into the data. A forward slash (/) indicates the position of a soil description (e.g., SICL/SC means the SICL is found overtop the SC). A plus sign (+) indicates a joint relationship (e.g., Moraine+Colluvium means both parent materials are present).

Survey

The Survey field identifies the source of the polygon information. Surveys are represented by a two character code.

Ecodistrict

Ecodistrict is coded for all polygons in the database that originated from one of the IRIs. It is missing for all polygons originating from the Hinton-Edson soil survey. Ecodistricts are represented by a two character code (e.g., BP - Berland Plateau).

Soil Association

The soil association is one component of the map units that form the basis of the Hinton-Edson soil survey. The associations are represented by a three character code (e.g., EDS - Edson).

In polygons originating from the IRIs, the surface material descriptor that is part of the ecosection label was used as the association equivalent (e.g., MC - Moraine/Colluvium). Conventions for abbreviations differed slightly between the IRIs. These were standardized for loading.

Variant

The variant, in conjunction with the soil association, identifies the map units that form the basis of the Hinton-Edson soil survey.

In polygons originating from the IRIs, the variant, in conjunction with the surface material descriptor, identifies the ecosection (e.g., MC 1, MC 2 and MC 3).

The Variants are represented by a one digit number (e.g., EDS 1, EDS 2 and EDS 3).

Modifier

A soil modifier is attached to some of the polygons that originated from the Hinton-Edson soil survey. The Modifier is represented by one character.

Series 1

Series 1 is coded for all polygons in the database that originated from the Hinton-Edson soil survey. It is missing for all polygons originating from the IRIs. Series 1 identifies the soil series of the dominant soil type within a map unit (and, through this, the dominant soil within a polygon).

The field has a maximum width of 10 characters.

Soil Subgroup 1

Soil Subgroup 1 identifies one of the soil subgroups associated with a map unit and/or polygon.

In polygons originating from the Hinton-Edson soil survey Soil Subgroup 1 represents the dominant soil type within a map unit (and, through this, the dominant soil within a polygon).

In polygons originating form the IRIs Soil Subgroup 1 does not necessarily represent the dominant soil type. In some cases, two soil types may be listed (i.e., where greater than three types were identified in one polygon).

The Soil Subgroup 1 field has a maximum width of 40 characters.

Soil Subgroup 1 Code

The Soil Subgroup 1 Code is simply an abbreviation of the Soil Subgroup information. If two soil subgroups are identified, then both a coded. Where the soil subgroup name does not correspond to Agriculture Canada naming conventions (1987), the great group only has been identified. An exception was made for Bisequa Gray Luvisol which was coded as BI.GL because it occurred frequently. The field has a maximum of 11 characters.

Series 2

Series 2, like Series 1, is coded for all polygons in the database that originated from the Hinton-Edson soil survey and is missing for all polygons originating from the IRIs.

Series 2 identifies the soil series of a significant soil type within a map unit (and, through this, a significant soil within a polygon). In some cases, two series may be listed.

The field has a maximum width of 16 characters (to accommodate those with two series).

Soil Subgroup 2

Soil Subgroup 2, like Soil Subgroup 1, identifies one of the soil subgroups associated with a map unit and/or polygon. In some cases, two soil types may be listed (i.e., where greater than three types were identified in one polygon).

In polygons originating from the Hinton-Edson soil survey Soil Subgroup 2 represents a significant soil type within a map unit (and, through this, the dominant soil within a polygon).

In polygons originating form the IRIs Soil Subgroup 2 the order of the subgroups does not necessarily have any significance.

The Soil Subgroup 2 field has a maximum width of 46 characters.

Soil Subgroup 2 C

The Soil Subgroup 2 C is simply an abbreviation of the Soil Subgroup information. If two soil subgroups are identified, then both are coded. The field has a maximum of 13 characters.

Soil Subgroup 3

Soil Subgroup 3, like Soil Subgroup 1 and 2, identifies one of the soil subgroups associated with a map unit and/or polygon (a third Soil Series was used in the Hinton-Edson soil survey). Up to three soil types may be listed (i.e., where greater than three types were identified in one polygon). In some instances, a soil description was used in place of a formal soil subgroup name (e.g., weakly gleyed soil, shallow soils, etc.).

In polygons originating from the Hinton-Edson soil survey Soil Subgroup 3 represents possible minor soil inclusions within a map unit (and, through this, the dominant soil within a polygon).

In polygons originating form the IRIs Soil Subgroup 3 the order of the subgroups does not necessarily have any significance.

The Soil Subgroup 3 field has a maximum width of 56 characters.

Soil Subgroup 3 Code

The Soil Subgroup 3 Code is simply an abbreviation of the Soil Subgroup information. If two soil subgroups are identified, then both are coded. Soil Subgroup 3 often identified 'Weakly gleyed soils'. These were coded as Gleysolic soils. The field has a maximum of 11 characters.

Ranked

The Ranked variable simply identifies whether or not there is any significance to the order in which soil types have been identified. Soils in the Hinton-Edson soil survey were ranked in order of importance in a map unit while those from the IRIs were not necessarily ranked by importance.

A single character defines whether or not the soil types are ranked.

Pine Moisture Status

Moisture Status refers to the inferred quantity of moisture that should be available for tree growth during the growing season. This field is available for polygons originating from the Hinton-Edson soil survey and is blank for polygons originating from the IRIs. A three character code is used to describe the Pine Moisture Status.

Soil Erosion Hazard

Soil Erosion is the expected rapidity and amount of soil loss, by either wind or water, that may be expected in an area following removal of protective vegetation and failing the implementation of proper erosion control measures. This is a comparative rating that applies only to soils in the Hinton-Edson survey area (i.e., the survey authors felt all soils in the area were highly susceptible to erosion). This field is available for polygons originating from the Hinton-Edson soil survey and is blank for polygons originating from the IRIs. A two character code is used to describe the Soil Erosion Hazard.

Windthrow Hazard

Windthrow Hazard reflects the soil characteristics affecting development of tree roots, and the risk of having trees blown over by normally expected winds. Windthrow is highest on soils with thick organic layers, soils with high water tables and shallow soils. This field is available for polygons originating from the Hinton-Edson soil survey and is blank for polygons originating from the IRIs. A two character code is used to describe the Windthrow Hazard.

Inferred Mortality

Inferred Mortality reflects the potential mortality of planted seedlings. Mortality due to vegetative competition is not considered. Mortality is highest on soils with high pH, soils with low capacity for holding moisture, soils with thick organic layers or soils that are excessively wet. This field is available for polygons originating from the Hinton-Edson soil survey and is blank for polygons originating from the IRIs. A two character code is used to describe the Windthrow Hazard.

Soil Texture

Soil Texture provides a description of the soil textures which can be expected within the map unit and/or polygon. For the Hinton-Edson soil survey and two of the IRI surveys, the texture is describe using standard soil texture classes (e.g., SICL, SCL surface). In one IRI the soil is described in more general terms (e.g., medium textured). One or two layers of soil are usually described (e.g., SICL surface/SCL, CL, C).

The Soil Texture field has a maximum of 40 characters.

Soil Texture Code

The Soil Texture Code provides a more standardized, coded version of the Soil Texture information to facilitate data summary and query. The Soil Texture Code classifies soils into five categories (e.g., coarse, medium, etc.). Texture categories describe both the surface and subsurface soil layers (e.g., C/M for coarse over medium). In many instances, only a single texture has been provided. In these cases the category is used to describe both the surface and subsurface layers (e.g., C/C).

Coarse textures (C) correspond to effective texture class 1 and 2, medium textures (M) to effective texture class 3 and fine textures (F) to effective texture class 4 from the 'Field Guide to Ecosites of West-central Alberta (1996).

The Soil Texture Code is a three character field.

Parent Material

Parent Material describes the parent material associated with a map unit and/or polygon. In some cases, two parent materials may be listed. One may occur over top a second or the two may occur together (e.g., small pockets of the two types).

The Parent Material field has a maximum of 35 characters.

Parent Material Code

The Parent Material Code provides a more standardized, coded version of the Parent Material information to facilitate data summary and query. The Parent Material Code simply uses one or two letter abbreviations for each of the parent materials. Where two or more parent materials are identified, all appear in the code.

Parent Material Code is a 7 character field.

Appendix

Table 1: Data Model Tables

Entity Name	Entity Definition
SOIL	Polygon coverage for mapped soil units.
UNITATTR	Attribute table of characteristics of each map unit.

Table 2: Data Model Attributes

See Table 3 for the valid values for attributes which have domains listed in *Domain Name* column.

Soil Polygon Attribute Table:

Table Name	Attribute Name	Attribute Definition	Schema Datatype	Domain Name
SOIL.PAT	AREA	Area of polygon (square meters)	REAL(12.3)	
	PERIMETER	Perimeter of polygon (meters)	REAL(12.3)	
	SOIL#	Internal polygon number	BINARY	
	SOIL-ID	Polygon number	BINARY	
	SURVEY	Soil survey/IRI identifier	CHAR(2)	SURV
	ECODISTRICT	Ecodistrict	CHAR(2)	ECODIST
	ASSOC1	Soil Association or Ecosection (1)	CHAR(3)	
	VARIANT1	Variant (1)	INTEGER	
	MODIFIER1	Map unit modifier (1)	CHAR(1)	MODIFY
	ASSOC2	Soil Association or Ecosection (2)	CHAR(3)	
	VARIANT2	Variant (2)	INTEGER	
	MODIFIER2	Map unit modifier (2)	CHAR(1)	MODIFY
	ASSOC3	Soil Association or Ecosection (3)	CHAR(3)	
	VARIANT3	Variant (3)	INTEGER	
	MODIFIER3	Map unit modifier (3)	CHAR(1)	MODIFY
	MINSPPC	Minimum slope percent	INTEGER	
	MAXSPPC	Maximum slope percent	INTEGER	
	CAPGRP	Soil association capability group	CHAR(1)	
	EXPAI	Expected PAI (cu/ha/yr)	INTEGER	
	LMF1	Land management factor 1	CHAR(1)	LMFACTOR
	LMF2	Land management factor 2	CHAR(1)	LMFACTOR
	LMF3	Land Management factor 3	CHAR(1)	LMFACTOR
	PERFGRP	Soil series performance group	INTEGER	

Soil Polygon Attributes:

Table Name	Attribute Name	Attribute Definition	Schema Datatype	Domain Name
UNITATTR	SURVEY	Soil survey/IRI identifier	CHAR(2)	SURV
	ECODISTRIC	Ecodistrict	CHAR(2)	ECODIST
	ASSOCIAT	Soil Association or Ecosection (1)	CHAR(3)	
	VARIANT	Variant (1)	INTEGER	
	SERIES1	Soil Series 1	CHAR(10)	
	SOILSUB1	Soil Subgroup 1	CHAR(40)	
	SOILSUB1C	Soil Subgroup 1 Code	CHAR(11)	SOILTYPE
	SERIES2	Soil Series 2	CHAR(16)	
	SOILSUB2	Soil Subgroup 2	CHAR(46)	
	SOILSUB2C	Soil Subgroup 2 Code	CHAR(11)	SOILTYPE
	SOILSUB3	Soil Subgroup 3	CHAR(56)	
	SOILSUB3C	Soil Subgroup 3 Code	CHAR(11)	SOILTYPE
	RANKED	Soil order reflects ranking	CHAR(1)	RANK
	PLMSTAT	Moisture status for lodgepole pine	CHAR(2)	STATUS
	EROSHAZ	Potential soil erosion hazard	CHAR(2)	STATUS
	WINDHAZ	Potential windthrow hazard	CHAR(2)	STATUS
	INFMORT	Inferred transplant mortality	CHAR(2)	STATUS
	SOILTEXT	Soil texture	CHAR(40)	
	SOILTEXTC	Soil texture code	CHAR(3)	TEXTCODE
	PARMATC	Parent material code	CHAR(7)	PAR_MAT

Table 3: Data Model Domains

ECODIST.LUT

Ecological Districts.

Ecodistrict	Label	Symbol
		0
BC	Brazeau/Cardinal	0
BP	Berland Plateau	0
MM	Middle McLeod	0
RM	Rocky Mountain	0
UF	Upper Foothills	0
WF	Wildhay Foothills	0
WL	Wolf Lake	0
WP	Windfall Plain	0
YH	Yellowhead	0

LMFACTOR.LUT

Limiting Factors

Lmf1	Lmf2	Lmf3	Label	Symbol
D	D	D	Rooting depth restrictions	0
M	M	M	Moisture (dry abrasive sandy soils)	0
O	O	O	Slight or no limitations	0
P	P	P	Stones (stones/cobbles to impede growth)	0
R	R	R	Relief (slope usually over 30%)	0
T	T	T	Toxicity (excessive alkalinity or acidity in root	0
U	U	U	Exposure	0
W	W	W	Wet (restricted drainage, high water table, flooding)	0

MODIFY.LUT

Modifiers

Modifier	Label	Symbol
G	Gleyed phase -imperfect drainage (not Gleysolic soils)	0
P	pH - soil reactions higher than normal	0
S	Stony phase - excessive concentration of cobbles/stone	0
T	Shallow phase - depth to unconforming layer less than	0

RANK.LUT

Ranking of soils in each polygon

Ranked	Label	Symbol
Y	Soils are ordered by dominance (1 = dominant)	0
N	Soils not necessarily ordered by dominance	0

SURVEY.LUT

Survey (Source of data)

Survey	Label	Symbol
BL	Berland IRP	0
CB	Coal Branch IRP	0
HE	Hinton-Edson SS	0
YH	Yellowhead IRP	0

PAR_MAT.LUT

Parent Material

Parmatc	Label	Symbol
A	Alluvial	0
A+E/M+L	Alluvial and/or Aeolian over Moraine and/or Lacustrine	0
C	Colluvium	0
C+M	Colluvium and/or Moraine	0
C/R	Colluvium over Bedrock	0
E	Aeolian	0
E+O	Aeolian and/or Organic	0
F	Fluvial	0
F+M+O	Fluvial and/or Moraine and/or Organic	0
F+O	Fluvial and/or Organic	0
G	Glaciofluvial	0
G/M+M	Glaciofluvial over Moraine and/or Moraine	0
G+O	Glaciofluvial and/or Organic	0
L	Lacustrine	0
L+F	Lacustrine and/or Fluvial	0
L+O	Lacustrine and/or Organic	0
M	Moraine	0
M+C	Moraine and/or Colluvium	0
M+C/R	Moraine and/or Colluvium over Bedrock	0
M+F	Moraine and/or Fluvial	0
M+G	Moraine and/or Glaciofluvial	0
M+L	Moraine and/or Lacustrine	0
M+O	Moraine and/or Organic	0
M+L+F	Moraine and/or Lacustrine and/or Fluvial	0
M/R	Moraine over Bedrock	0
M/R+X	Moraine over Bedrock and/or Residuum	0
O	Organic	0
O+M	Organic and/or Moraine	0
O+F	Organic and/or Fluvial	0
O/L	Organic over Lacustrine	0
R+C	Bedrock and/or Colluvium	0
X	Residuum	0

STATUS.LUT

Status Codes for:

plmstat	Moisture status for lodgepole pine
eroshaz	Potential soil erosion hazard
infmort	Inferred transplant mortality
windhaz	Potential windthrow hazard

Plmstat	Eroshaz	Windhaz	Infmort	Label	Symbol
G	G	G	G	Good	0
GM	GM	GM	GM	Good to moderate	0
H	H	H	H	High	0
L	L	L	L	Low	0
M	M	M	M	Moderate	0
MG	MG	MG	MG	Moderate to good	0
MH	MH	MH	MH	Moderate to high	0
ML	ML	ML	ML	Moderate to low	0
MPD	MPD	MPD	MPD	Moderate to poor (dry)	0
P	P	P	P	Poor	0
PD	PD	PD	PD	Poor (Dry)	0
PW	PW	PW	PW	Poor (Wet)	0

TEXTCODE.LUT

Soil texture codes

Soil_text_	Label	Symbol
C/C	Coarse over coarse textured soils	0
C/F	Coarse over fine textured soils	0
F/F	Fine over fine textured soils	0
M/F	Medium over fine textured soils	0
M/M	Medium over medium textured soils	0
P/P	Peaty soils	0
R/R	Organic soils	0

SOILTYPE.LUT

Soil Types

Soilsub1c	Soilsub2c	Soilsub3c	Label	Sym
				0
.B	.B	.B	Degraded Brunisol	0
.B	.B	.B	Orthic Brunisol	0
.B	.B	.B	Orthic+Degraded Brunisol	0
.B	.B	.B	Orthic+Degraded Brunisol+weakly gleyed soils	0
.B+.L	.B+.L	.B+.L	Degraded Brunisol+Brunisolic Luvisol	0
.DYB	.DYB	.DYB	Degraded Dystric Brunisol	0
.EB	.EB	.EB	Degraded Eutric Brunisol	0
.EB	.EB	.EB	Degraded Eutric Brunisol+weakly gleyed soils	0
.EB	.EB	.EB	Degraded Eutric Brunisol+weakly gleyed+very shallow soils	0
.EB	.EB	.EB	Lithic Degraded Eutric Brunisol	0
.F	.F	.F	Fibrisol	0
.F/.G	.F/.G	.F/.G	Fibrisol+Gleysol	0
.G	.G	.G	Gleysol	0
.G	.G	.G	Low Humic Eluviated Gleysol	0
.G	.G	.G	Low Humic Eluviated Gleysol+Organic soils	0
.H	.H	.H	Humisol	0
.HG	.HG	.HG	Humic Gleysol	0
.L	.L	.L	Brunisolic Luvisol	0
.L	.L	.L	Brunisolic Luvisol+weakly gleyed soils	0
.L	.L	.L	Lithic Orthic Luvisol	0
.M	.M	.M	Mesisol	0
BI.GL	BI.GL	BI.GL	Bisequa Gray Luvisol	0
BI.GL	BI.GL	BI.GL	Bisequa Gray Luvisol+weakly gleyed soils	0
BI.GL+O.GL	BI.GL+O.GL	BI.GL+O.GL	Bisequa+Orthic Gray Luvisol	0
BR.GL	BR.GL	BR.GL	Brunisolic Gray Luvisol	0
BR.GL	BR.GL	BR.GL	Brunisolic Gray Luvisol+weakly gleyed soils	0
BR.GL+BI.GL	BR.GL+BI.GL	BR.GL+BI.GL	Brunisolic+Bisequa Gray Luvisol+weakly gleyed soils	0
BR.GL+GL.GL	BR.GL+GL.GL	BR.GL+GL.GL	Brunisolic+Gleyed Gray Luvisol	0
BR.GL+GLBR.G	BR.GL+GLBR.G	BR.GL+GLBR.G	Brunisolic+Gleyed Brunisolic Gray Luvisol	0
BR.GL+O.GL	BR.GL+O.GL	BR.GL+O.GL	Brunisolic+Orthic Gray Luvisol	0

Soilsub1c	Soilsub2c	Soilsub3c	Label	Sym
BR.GL+O.LG	BR.GL+O.LG	BR.GL+O.LG	Brunisolic Gray Luvisol+Orthic Luvic Gleysol	0
CU.R	CU.R	CU.R	Cumulic Regosol	0
CU.R+BR.GL	CU.R+BR.GL	CU.R+BR.GL	Cumulic Regosol+Brunisolic Gray Luvisol	0
CU.R+O.G	CU.R+O.G	CU.R+O.G	Cumulic Regosol+Orthic Gleysol	0
E.DYB	E.DYB	E.DYB	Eluviated Dystric Brunisol	0
E.DYB	E.DYB	E.DYB	Eutric Dystric Brunisol	0
E.EB	E.EB	E.EB	Eluviated Eutric Brunisol	0
E.EB+E.DYB	E.EB+E.DYB	E.EB+E.DYB	Eluviated Eutric+Dystric Brunisol	0
E.EB+O.EB	E.EB+O.EB	E.EB+O.EB	Eluviated+Orthic Eutric Brunisol	0
E.EB+O.LG	E.EB+O.LG	E.EB+O.LG	Eluviated Eutric Brunisol+Orthic Luvic Gleysol	0
FI.M	FI.M	FI.M	Fibric Mesisol	0
G.GL	G.GL	G.GL	Gleyed Gray Luvisol	0
GL.EB	GL.EB	GL.EB	Gleyed Eutric Brunisol	0
GL.GL	GL.GL	GL.GL	Gleyed Gray Luvisol	0
GL.R	GL.R	GL.R	Gleyed Regosol	0
GL.R+T.M	GL.R+T.M	GL.R+T.M	Gleyed Regosol+Terric Mesisol	0
GLBR.GL	GLBR.GL	GLBR.GL	Gleyed Brunisolic Gray Luvisol	0
O.DYB	O.DYB	O.DYB	Lithic Orthic Dystric Brunisol	0
O.DYB	O.DYB	O.DYB	Orthic Dystric Brunisol	0
O.DYB	O.DYB	O.DYB	Orthic Dystric Brunisol+weakly gleyed+very shallow soils	0
O.EB	O.EB	O.EB	Lithic Orthic Eutric Brunisol	0
O.EB	O.EB	O.EB	Orthic Eutric Brunisol	0
O.EB	O.EB	O.EB	Orthic Eutric Brunisol+weakly gleyed+very shallow soils	0
O.EB+.EB	O.EB+.EB	O.EB+.EB	Orthic+Degraded Eutric Brunisol	0
O.EB+E.EB	O.EB+E.EB	O.EB+E.EB	Orthic+Eluviated Eutric Brunisol	0
O.G	O.G	O.G	Orthic Gleysol	0
O.G	O.G	O.G	Orthic+Humic Gleysol	0
O.G	O.G	O.G	Peaty Orthic Gleysol	0
O.G+.M	O.G+.M	O.G+.M	Orthic Gleysol+Mesisol	0
O.G+R.G	O.G+R.G	O.G+R.G	Orthic+Rego Gleysol	0
O.G+T.M	O.G+T.M	O.G+T.M	Orthic Gleysol+Terric Mesisol	0
O.GL	O.GL	O.GL	Lithic Orthic Gray Luvisol	0
O.GL	O.GL	O.GL	Orthic Gray Luvisol	0
O.GL	O.GL	O.GL	Orthic Gray Luvisol	0
O.GL	O.GL	O.GL	Orthic Gray Luvisol+weakly gleyed soils	0

Soilsub1c	Soilsub2c	Soilsub3c	Label	Sym
O.GL+.EB	O.GL+.EB	O.GL+.EB	Orthic Gray Luvisol+Degraded Eutric Brunisol	0
O.GL+.GL	O.GL+.GL	O.GL+.GL	Orthic+Gleyed Orthic Gray Luvisol	0
O.GL+BI.GL	O.GL+BI.GL	O.GL+BI.GL	Orthic+Bisequa Gray Luvisol	0
O.GL+BI.GL	O.GL+BI.GL	O.GL+BI.GL	Orthic+Bisequa Gray Luvisol+weakly gleyed soils	0
O.GL+BR.GL	O.GL+BR.GL	O.GL+BR.GL	Orthic+Brunisolic Gray Luvisol	0
O.HFP	O.HFP	O.HFP	Orthic Humo-Ferric Podzol	0
O.HG	O.HG	O.HG	Orthic Humic Gleysol	0
O.HG+R.G	O.HG+R.G	O.HG+R.G	Orthic Humic+Rego Gleysol+Organic soils	0
O.LG	O.LG	O.LG	Orthic Luvic Gleysol	0
O.P	O.P	O.P	Orthic Podzol+weakly gleyed soils	0
O.R	O.R	O.R	Orthic Regosol	0
O.R+CU.R	O.R+CU.R	O.R+CU.R	Orthic+Cumulic Regosol	0
O.R+GL.R	O.R+GL.R	O.R+GL.R	Orthic+Gleyed Regosol	0
O.R+O.G	O.R+O.G	O.R+O.G	Orthic Regosol+Gleysol	0
O.R+O.P	O.R+O.P	O.R+O.P	Orthic Regosol+Podzol	0
O.R+T.M	O.R+T.M	O.R+T.M	Orthic Regosol+Terric Mesisol	0
R.G	R.G	R.G	Rego Gleysol	0
R.G	R.G	R.G	Rego Gleysol+Organic soils	0
R.G+T.M	R.G+T.M	R.G+T.M	Rego Gleysol+Terric Mesisol	0
T.F	T.F	T.F	Terric Fibrisol	0
T.M	T.M	T.M	Terric Mesisol	0
T.M+TY.M	T.M+TY.M	T.M+TY.M	Terric+Typic Mesisol	0
TY.F	TY.F	TY.F	Typic Fibrisol	0
TY.M	TY.M	TY.M	Typic Mesisol	0
TY.M+T.M	TY.M+T.M	TY.M+T.M	Typic+Terric Mesisol	0
WG+SS	WG+SS	WG+SS	Weakly gleyed+shallow soils	0
WGS	WGS	WGS	Weakly gleyed soils	0

SERIES

Series does not require a look up table as the value in the series field of table unitattr is the complete code. However, we provide below a list of the valid series found in the soils dataset.

SERIES1 / SERIES2
Alluvium/River Bank
AlluviumComplex
Ansell
Baril
Berland
Bickerdike
Cadomin
Clouston
Coalspur
Codesa
Culp
Dalehurst
Deerlick
Drinnan
Embarras
Entrance
Felton
Fidler
Gregg
Hanlan
Hardisty
Hargwen
Hightower
Hornbeck
Hubalta
Judy
KiaNea
Kinky
Levi
McPherson
Mercoal
MiningLand

SERIES1 / SERIES2
Modeste
Mountain
Nosehill
OChiese
Ogre
Orchard
Pedley
Peppers
Percotte
Pinto
RiverBank
Rosevear
Sterco
Sundance
TomHill
UrbanLand
Wampus
Weald

Appendix 3

Weldwood Road Numbering Documentation

General Item Specifications Current and desired items.

Road_key: This is the unique identifier for all roads on the FMA.

Class 1 Roads: ie. 900101

9 00101 means more that one working circle.

9 = four lane paved highway.

8 = two lane paved highway.

7 = two lane gravelled highway.

9 **00** 101 is a space filler.

900 **1** 01 is the road class.

9001 **01** is the first class 1 road identified.

Class 2,3,4,5 roads: ie. 127201

1 27201 is the working circle that the road starts in.

1 **27** 201 is the compartment that the road starts in.

127 **2** 01 is the road class.

1272 **01** is the first class 2 road that starts in Athabasca 27.

Non FMA roads: 999999

The road key should be independent of company. The 'class 6' roads (oil company roads) will have to be changed so that the class is accurately represented.

Disp_key: ie. LOC758493 - This is the unique identifier for all roads registered with the Alberta government.

LOC 758493 is the disposition type

LOC **758493** is the number of the disposition

Road_class: Indicates type of road.

1: Permanent - All-weather roads joining working circles.

2: Permanent - All-weather roads joining compartments.

3: Permanent - All-weather roads within compartments.

4a. Permanent - Summer roads.

4b. Temporary - Summer roads.

5: Temporary - Winter roads.

We will need to decide if the distinction between 4a and 4b is worth showing in the database and if so, how will we differentiate within the road key item.

Company_number: Indicates who has the legal disposition on the road.

As per the company list

Rd_status: Current planning status of the road.

1 = Actual 2 = Proposed